

# GREEN MATTERS

A newsletter from the Alberta Environmentally Sustainable Agriculture Council

## Our Water Challenge

### From AESA Council's Chair

*by John Kolk,  
Poultry Industry Council*

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Issue No.22, Winter 2005

After attending the Confronting Water Scarcity conference at the University of Lethbridge this past summer, I read *Water: The Fate of Our Most Precious Resource* by Marq De Villiers. That book along with Dr. Hans Schreier's speech at the recent Agricultural Service Board conference reinforced the overwhelming issues we are facing in managing, protecting and wisely using our water resources in the agricultural community.

Six years ago, the Alberta Environmentally Sustainable Agriculture (AESA) Council set in motion a shift from a soil focus to a water focus in our programming. Although Council recognized that all four key areas – air, water, soil and biodiversity – are interrelated, it felt that water-related concerns needed priority attention. The environmental issues in Alberta over the past six years have emphasized the foresight of that decision.

Water allocation, quality, quantity, location and management are key issues in western North America. Albertans' deep commitment to our natural resources is reflected in the fact that as a province we have engaged in a deliberate process to address water issues before we are in a crisis. The development of the Water for Life strategy recognized that water issues have to be considered in a 20- to 50-year time frame and addressed comprehensively with input from all stakeholders. The recent droughts have underlined the crucial importance of water to Alberta's agricultural community. We will have to continue to provide leadership as the other sectors and urban Albertans come to that same realization.

Climate change, urban demand, industrial use and in-flow stream needs are affecting the quantity and quality of the water available for food production. The collision of values, changing expectations, and growing demands around water seem overwhelming. The agricultural community, in part due to AESA's leadership, has been addressing these challenges and will need to continue to direct resources to our piece of the solutions.

While it is important that we grasp the large trends, improvements only occur when we get to work in our own backyards. Across the province, watershed groups composed of producers and others in the community are working to protect the health of their creeks. For instance, in August, AESA Council toured sites in the Pincher Creek area where AESA-supported partnerships are making a real difference.



Phil Boehme /AAFRD

I toured a local dairy farm recently and was impressed by the recent barn renovations. The producer, not known for his environmental sensitivities, proudly displayed a number of water conservation features in his milk cooling system. He had installed a plate cooler, which uses water to pre-cool the milk, and then the warmed-up water is directed to the drinking trough for the cows. He's also using the grey wash water to flush the manure in the holding areas. He conceded that these features cost more to install, but would pay off in lower energy consumption and manure hauling costs, while saving water.

Actions like this convince me that, while we have more work to do, farmers are adapting to improve the environment. Extension efforts, awareness building, monitoring and individual actions are combining to address the challenges. This issue of Green Matters is focused on keeping up that momentum.



# Alberta Water Council: Guiding the Water Strategy

"In talking with people from every sector of water use, I've become convinced that if we want to influence the future of how water is used and what our province and communities will look like in the future, Alberta's Water for Life strategy is a really good place to start to get at those issues and help us build the West that we want," says David Hill of the Alberta Irrigation Projects Association.

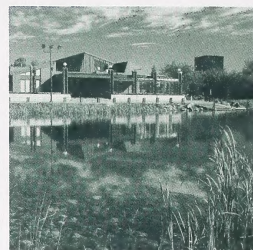
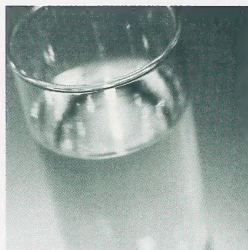
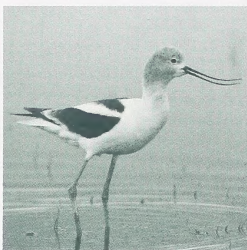
Hill represents the irrigation sector on the Alberta Water Council. This independent, multi-stakeholder body was created in May 2004. Its purpose is to identify and address water issues in the province and to guide implementation of Alberta's Water for Life strategy.

The strategy, released in November 2003, was developed through 18 months of consultations with Albertans and water experts. Its comprehensive approach to Alberta's water issues includes short-, medium- and long-term actions to accomplish three major goals: safe, secure drinking water; healthy aquatic ecosystems; and reliable quality water supply for a sustainable economy.

The Alberta Government retains responsibility and accountability for water management decisions, but partnerships – like the Water Council – are key to achieving the strategy's goals. By bringing together knowledge, resources and perspectives and by sharing responsibility, partnerships are better able to address the complex issues in water management.

Alberta Environment's Terry Sly says, "The strategy identified that Albertans wanted a greater role in the decision making in water management. One of the ways to bring this about is through three types of partnerships – the Alberta Water Council at the provincial level, Watershed Planning and Advisory Councils at the basin level, and Watershed Stewardship Groups at the local level."

The Water Council's 25 members represent industry, non-government organizations, Alberta Government ministries and provincial authorities, and other governments (see box). Sly, who is on the Council's Secretariat, says the broad-based membership ensures that "the Council is representative of the interests of each sector while also being able to take the big picture view for the greater good of all Albertans. Everybody at the



Alberta Environment

table is a partner, and they work under consensus decision making to find the best solutions to water issues."

The Water Council has already developed its terms of reference that spell out how it will accomplish its mandate. It is currently beginning work on several priority tasks including identifying water conservation and efficiency targets for all sectors and reviewing Alberta's wetlands policy.

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place ..."

Hill says, "We're trying to be very strategic at the Water Council in addressing some of the bigger province-wide issues. We don't want to duplicate the kind of work undertaken within basins or individual watersheds. Instead, we want to make sure that the right kinds of research, policies and initiatives are in place to give people more

tools and opportunities to address the issues in their own basins and watersheds in the ways that work best for their areas."

Although Alberta faces water management challenges, such as increasing demands for water due to the growing population and economy, as well as drought and water quality issues, Hill is optimistic. He says, "[Within the irrigation sector] for the last decade, we've been taking a hard, strong look – scientifically, operationally and policy-wise – at how we manage water for food production. And we have achieved some significant gains. As an example, irrigators today use a third less water per acre than they did just 15 years ago. That's a huge increase in efficiency."

Hill adds, "If we can capitalize on everybody's expertise and strengths, then we should be able to make our finite water supplies produce a whole lot more benefits and to do it in a way that is much more environmentally sustainable than perhaps we've been able to do in the past."

More information about the Alberta Water Council and the Water for Life strategy is available at [www.waterforlife.gov.ab.ca](http://www.waterforlife.gov.ab.ca).

## A diverse partnership

The Alberta Water Council's members include representatives from the following sectors:

**Industry:** irrigation; mining; oil and gas; forestry; livestock; chemical and petrochemical; power generation

**Non-Government Organizations:** wetlands; fish habitat; lake environment; environmental networks; basin councils

## Alberta Government Ministries and Agencies:

Environment; Sustainable Resource Development; Energy; Agriculture, Food and Rural Development; Health and Wellness; Science and Research Authority; Economic Development Authority

**Other Governments:** Government of Canada; large urban centres; small urban centres; rural municipalities; First Nations; Metis settlements



# Regional Partnerships for Wise Water Management

A second type of partnership under the Water for Life strategy is the Watershed Planning and Advisory Councils (WPACs). These multi-stakeholder groups will provide a means for Albertans to become more involved in maintaining safe, secure water resources in Alberta's major river basins.

"Depending on how you split them up, there are seven or eight major watersheds in Alberta," explains Petra Rowell of Alberta Environment. "There could be 10 or 12 WPACs, depending on how each group evolves and what works best for the stakeholders."

Rowell says existing basin groups, including the Oldman Watershed Council, Bow River Basin Council and North Saskatchewan Watershed Alliance, are in the process of obtaining official WPAC status. She says WPACs will also likely form for the Red Deer River, Battle River, Milk River, Lesser Slave Lake, and Cold Lake-Beaver River basins. In the very large Athabasca and Peace River basins, the stakeholders might choose to form two groups within each basin.

Although each WPAC will develop and operate according to its own needs, Rowell says there are some general requirements for all WPACs. For example, their membership must be inclusive and representative of stakeholders in the basin, and they should operate on a consensus basis. Also,

they need to follow good operating principles like preparing annual business plans and publishing annual reports.

The WPACs will have various important functions. For example, they will provide a forum for sharing information and perspectives among the stakeholders in the basin. They will assess the current state of the watershed, create and implement a watershed management plan and evaluate the plan's effectiveness. Each WPAC may also conduct educational programs, such as promoting sustainable practices for agriculture, industry and urban areas. The WPACs will also provide input to the Alberta Water Council through their Council representative.

Rowell emphasizes, "A lot of these things are just evolving, and there are no hard and fast rules. It's really about partners and players coming together, and figuring out what the issues are, how best to attack those issues, and building the capacity to implement solutions."

## Breathing life into the strategy

The Bow River Basin Council (BRBC), one of the existing basin groups, has recently been designated as the WPAC for the Bow River Basin. This multi-stakeholder group includes more than 120 member organizations and individuals from the basin. It is dedicated to conducting activities for the improvement and protection of waters in the basin.

The BRBC was very involved in development of the Water for Life strategy. BRBC Executive Director Mark Bennett says, "We think the water strategy is a very good, well conceived idea. Our membership is very intent on doing what we can to breathe life into it and help it succeed."

Bennett says the BRBC is excited about being included in the partnerships envisioned by the strategy. He notes, "It is important to remember that a partnership is a relationship between individuals or groups that is characterized by joint rights, close cooperation and shared responsibilities to achieve mutual goals – in this case the water strategy."



The Bow River near the Ronalene Bridge

## Watersheds on the Web

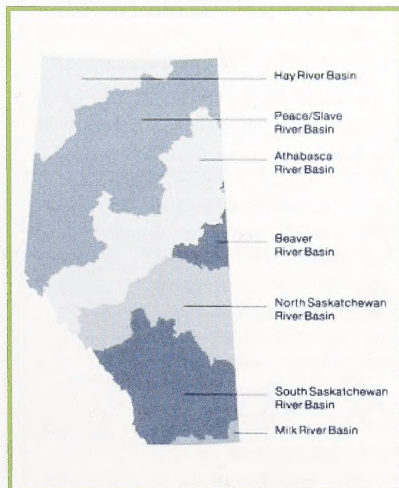
Along with [www.waterforlife.gov.ab.ca](http://www.waterforlife.gov.ab.ca), other websites about Alberta watershed-related agencies and groups include:

- Bow River Basin Council at [www.brbc.ab.ca](http://www.brbc.ab.ca)
- Oldman Watershed Council at [www.oldmanbasin.org](http://www.oldmanbasin.org)
- North Saskatchewan Watershed Alliance at [www.nswa.ab.ca](http://www.nswa.ab.ca)
- Local watershed groups at [www.albertawatersheds.org](http://www.albertawatersheds.org)

Established in 1991 as a registered non-profit charitable organization, the BRBC already conducts many WPAC functions. For example, it has almost completed a comprehensive state-of-the-watershed report for the basin. It took on the role of the Basin Advisory Committee for the Bow River as part of the South Saskatchewan River Water Management Plan initiative. The BRBC has worked on such topics as urban storm water issues and riparian guidelines. As well, BRBC members sit on steering and advisory committees for various water-related initiatives.

The BRBC also actively supports local watershed groups in the basin. For instance, it conducts quarterly networking and education forums on different water management issues for BRBC members. It also funds projects to protect and conserve the waters of the basin. And it provides in-kind resources, with BRBC staff working on the committees of some local groups.

Bennett says, "Basically, we undertake activities that benefit the water and the watershed. By doing that, we are helping ourselves, the water strategy, and the province."



Alberta's major river basins



# Local Partnerships for Local Action

Over 40 local watershed groups have formed in Alberta in recent years. These grass-roots groups are involved in awareness activities and on-the-ground actions to address local priorities like protecting water quality and quantity, and sustaining streamside habitat. The Water for Life strategy identifies these Watershed Stewardship Groups as the third vital partnership type for accomplishing the strategy's goals.

Alberta Environment's Petra Rowell says, "A lot of these Watershed Stewardship Groups and some of the WPACs, like the Bow River Basin Council and the North Saskatchewan Watershed Alliance, started long before the Water for Life strategy. The strategy recognizes that they are leading the way and doing great stuff. And if we can help bring partners together and increase their capacity, that's what we want to be doing."

Many of these local groups are in agricultural areas and are driven by local producers. George Stalker, Watershed Coordinator for the M.D. of Rocky View, works with three producer-based watershed groups located within the Bow River Basin. He says, "I don't believe all the local watershed groups are really familiar with the strategy. That said, the strategy's three goals are being met as a result of what farmers have been doing."

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Stalker cites many examples of how groups in his area are contributing to those goals. For instance, he says, "Every year, the Farmers of the Elbow Watershed have been putting in what they call a 'habitat enhancement project'. The farmers take a portion of a riparian area [an area near a river, creek or wetland] that had been accessible to livestock and fence it to restrict livestock access. In some cases, the farmers provide an alternative water source which the cattle prefer over going down to the river to drink." The fenced-off areas have "dramatically" recovered, rapidly filling in with water-loving plants. He adds, "Healthy riparian areas act as a natural filter for the water



G. Stalker/M.D. of Rocky View

One of the riparian areas fenced off by the Farmers of the Elbow Watershed to protect water quality

running off the upland. The cattails, rushes, reeds and willows trap sediments and use the nutrients in the runoff, so the water entering our rivers is a lot cleaner."

In Stalker's experience, producers are very aware that their productivity depends on healthy water and soil resources. "Farmers recognize they are tied to the land and have been implementing beneficial management practices [BMPs] to ensure the long-term sustainability of their family businesses. The BMPs increase their farm's environmental health – they are a capital asset investment."

He adds, "However, cash flow can be a real barrier to getting the BMPs on the ground. Alberta just came out of three to four years of drought, five years some say, and on top of that cattle producers are dealing with the BSE crisis. A typical little BMP project to put up a fence or an off-site watering system can run to \$3000 to \$4000....In a lot of cases, it's money that people just don't have."

Many local groups seek out partners to provide financial and technical assistance for projects. For instance, Stalker says Joe Zink, interim leader of the Farmers of the Elbow Watershed (FEW), has designed a Cattle Setback Program, which provides funding for fences and waterers to keep cattle off the Elbow River and its tributaries. The FEW is partnering with agencies including

the M.D. of Rocky View, the Cows and Fish program, the Bow River Basin Council, and the City of Calgary to secure funding and implement projects.

The Water for Life strategy encourages partnerships within basins, with WPACs providing information and assistance to local groups, and local groups sharing their knowledge and taking part in basin-wide initiatives. In Stalker's case, he is a member of the Bow River Basin Council, providing a link between the Council and local groups. The Council provides educational and networking assistance to groups as well as some project funding.

Stalker says watershed health declined over the past century due to the independent actions of many individuals doing what they thought was best for their families. He believes the path back to healthy watersheds will also be through the independent actions of many individuals. The difference is that today, because of the efforts of groups like the FEW and many others, producers have much greater knowledge of the effects of their actions.

He says, "With a better understanding of our relationship to the landscape, we can take the steps needed to sustain the environmental and economic health of our farms and communities."



# COUNCIL PROFILES

## Glenn Sawyer

Glenn Sawyer came to farming by a somewhat indirect route. He grew up in Calgary and attended the University of Calgary, studying physical education. After he and his wife taught school for five years, they saw the light and began farming. Now, some 30 years later, they are still at it.

He says, "My wife and I farm northeast of Calgary, and I also farm with my son and his family." The Sawyers grow different types of wheat, barley for malt and feed, and canola, and they have a small cow-calf operation.

Considering the environment is an integral part of the Sawyers' operation. He gives a few examples of their practices: "We no-till to prevent water erosion and wind erosion. We only use insecticides if we absolutely have to. When we fill our [herbicide] sprayers, we

keep quite a distance away from our water sources."

The Sawyers are currently developing an Environmental Farm Plan for their farm. His wife Joy belongs to the Acme Agricultural Society, which recently hosted an Environmental Farm Plan workshop.

The Environmental Farm Plan program provides a voluntary, confidential process to help farmers assess and address the environmental risks and opportunities on their farms. Sawyer says, "We've taken our first session of that. I found it very interesting. It's a two-day workshop, and you try to analyze everything about your farm from [an environmental view] – whether it's pesticide storage, or where you put your fuel, or where you feed your animals. It was very informative."

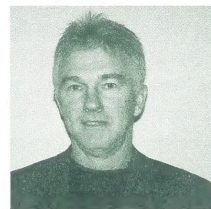
In terms of environmental issues for Alberta producers, Sawyer says, "I am concerned that farmers need a better way to dispose of their used oil and also their herbicide containers."

Over the years, Sawyer has served on several producer commissions. He was on the Alberta Canola Producers Commission for six years and a director for the Western Canadian Wheat

Growers for several years. For the last four years, he has been a delegate for his region on the Alberta Barley Commission.

Sawyer is the new representative for the Alberta Barley Commission on AESA Council. The commission is a not-for-profit organization funded, directed and controlled by Alberta barley farmers. Its mandate includes coordinating and sponsoring research, market development, technology transfer, and policy development on behalf of barley producers.

About half of Canada's barley production comes from Alberta, and the Alberta Barley Commission is the only barley commission in Canada. What's so good about Alberta barley? Sawyer says, "It makes really good muffins, and it's healthy. It makes for wonderful Alberta beef, and the hogs like it too. And it makes good beer." What more could you ask for?



Roger Bryan/AEFRD

## Alain Lavoie



Alain Lavoie is the new representative on AESA Council for the Peace Region Committee of AESA's Farm Based Program. This is Lavoie's first year as

chairman of that committee, after serving as a committee member for about five years.

The Farm Based Program aims to encourage adoption of environmentally responsible management practices by producers. The Peace Region Committee is one of the program's four regional committees. These committees evaluate proposals from municipalities, producer groups and other agencies for funding assistance to conduct local extension programming. The committees also provide input on stewardship issues to AESA Council and staff.

"Every region has its own needs," explains Lavoie. "The Farm Based Program is based

on regional needs so the program will be better accepted by the producers and more efficient and effective."

He adds, "It's a challenge here in the Peace because every area is different. Working with all the producer and research associations is very interesting because everybody has different needs. For instance, Grimshaw has aquifers, High Prairie has a lot of riparian areas, and the northern areas tend to have more forestry. I think it's important that the program be flexible and continues to work with as many groups as possible to make sure that we address producer needs."

Local programs funded recently in the Peace Region include such topics as manure management for intensive livestock operations, which are becoming more common in the region, and testing the use of ash from the forestry industry to reduce soil acidity, to see if this practice might benefit both forestry and agriculture.

Lavoie grew up in St-Isidore, about 15 km east of the town of Peace River. After earning his degree in Agriculture from the University of Alberta, he started farming near St-Isidore.

Along with his uncles and cousins, he operates a dairy and grain farm.

"For our operation, environmental stewardship definitely is important because it's intensive livestock," he notes. "We have to keep track of all the information on manure application, do soil testing, and make sure that we use the proper application rates and manage the land properly."

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**"Every region has its  
own needs."**

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Lavoie's knowledge of the Peace Region's stewardship issues will help him to provide valuable input to AESA Council. His initial experiences with Council have been positive. He says, "I've found it very informative, a very good way to get good interaction between the different industries and different regions, and to understand better everybody's challenges and how we can deal with air, land and water quality, so we can all make it the best possible for farmers to have a viable future."



# Assessing BMPs for Effectiveness & Economics

Developing cost-effective beneficial management practices (BMPs) is essential to make progress toward healthier watersheds. A \$5.65-million national study, led by Agriculture and Agri-Food Canada, is examining the effectiveness of various agricultural BMPs on a watershed basis at seven sites across Canada, including one in southern Alberta.

Called the Watershed Evaluation of BMPs Study (WEBS), it will quantify the environmental and economic effects of selected BMPs on water quality at a microwatershed scale (about 300 hectares in size).

The watershed approach is key to the study. BMPs are often evaluated on test plots or small fields, and then the net effects at the watershed level are predicted using scientific models. But complex interactions between diverse factors can alter how farm-level changes affect overall water quality in a watershed, so the predictions need to be checked with reality to ensure that the BMPs are truly effective.

The microwatershed in Alberta is a small portion of the Little Bow River watershed and lies northeast of Lethbridge. Dr. Jim Miller of Agriculture and Agri-Food Canada is leading this project. He says, "We picked the Lower Little Bow River because it had been intensively studied in the Oldman River Basin Water Quality Initiative, so it had a good historical database."

The project runs from 2004 to 2008. So far, the Alberta research team has set up monitoring equipment and started implementing the following five types of BMPs in the microwatershed:

- Off-stream watering with fencing – to compare water quality upstream and downstream of a

riparian pasture that has been fenced off since about 2001 to keep cattle out of the river.

- Off-stream watering with no fencing – to compare water quality before and after off-stream watering systems are installed in a winter pasture and a summer pasture.
- Conversion to forages – to compare the water quality of the runoff from two fields before and after they are converted from irrigated barley to forages.
- Buffer strips – to assess the ability of various types of buffer strips to filter sediments from field runoff, comparing tame grass strips, tame grass/shrub strips, and native grass strips, each at widths of 5, 15 and 30 m.
- Beef manure application rates – to compare the runoff water quality from plots with no manure to plots with application rates based on the crop's annual nitrogen requirement, its annual phosphorus requirement, and its three-year phosphorus requirements.

The project is a cooperative effort, explains Miller. "We have a large committee with people from different agencies, and everyone brings a different perspective. It's good to get different viewpoints on different problems from the economists to the fisheries person, extension agents, researchers, and all the other people." The committee includes representatives from: Agriculture and Agri-Food Canada's Research Branch and PFRA; Alberta Agriculture, Food and Rural Development; the County of Lethbridge; Fisheries and Oceans Canada; Ducks Unlimited Canada; and the University of Alberta.

WEBS is funded mainly through Greencover Canada, a five-year, \$110-million federal initiative to help producers improve grassland management, protect water quality, reduce greenhouse gas emissions and enhance habitat. Ducks Unlimited Canada is a national partner in the study, contributing \$1.25 million of the total cash funding. For more information on WEBS, visit <http://www.agr.gc.ca/env/greencover-verdir/>.



Ducks Unlimited Canada

Off-site watering is one of the BMPs being assessed

## Correction on methane emissions: the true truth!

The Summer 2004 issue of *Green Matters* included the "true story" of methane (a greenhouse gas) emissions from cattle. It turns out the truth we printed wasn't quite true! The article stated that, "Some bacteria in the rumen produce methane as a by-product. That methane is absorbed into the bloodstream, goes through the bloodstream into the lungs, and then is exhaled. That's where the bulk of the methane comes from. So we can put to bed the myth that cows are incredibly rude burping, farting creatures!"

In fact, only some of the methane is absorbed by the bloodstream and exhaled by the animal. Most of the methane comes out via "eructation" – the cow's deliberate expulsion of rumen gas through its mouth and nose. Eructation is done quite silently though, beef scientists assure us! A small amount of gas is emitted through the rectum as well. So we can still say that our cattle are no more rude than the rest of us!

*Green Matters*, Issue No. 22, Winter 2005  
Aussi disponible en français.

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*Green Matters* is the newsletter of the Alberta Environmentally Sustainable Agriculture (AESACouncil). AESACouncil consists of representatives from Alberta's agriculture and food processing industry, environmental organizations and government.

AESACouncil's vision is that Alberta has a thriving agriculture and food industry that is operating in an environmentally responsible manner. Its mission is to lead the agriculture and food industry in addressing environmental challenges. And its goal is to develop and deliver collaborative environmental stewardship initiatives that result in sustainable growth of Alberta's farm, ranch and agri-food processing industry.

The purpose of *Green Matters* is to provide a forum for discussion of environmental issues in Alberta's agriculture and food processing industry.

To subscribe to *Green Matters*, call 780-422-4385. *Green Matters* is also available online at <<http://www1.agric.gov.ab.ca>>.

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Design and Typesetting: P40 Visual Communications

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